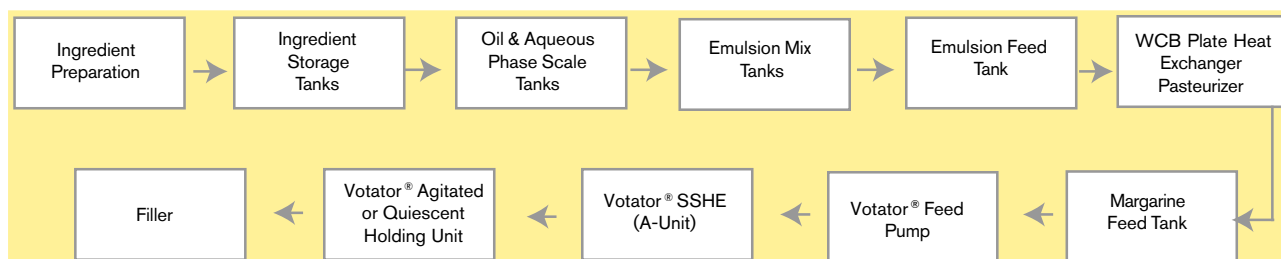


## CONTINUOUS PRODUCTION OF MARGARINE

### PROCESS DESCRIPTION :

Milk, concentrated emulsifier solution, brine and margarine oils are prepared and stored in individual raw material tanks. Separate scale tanks for the oil and aqueous phases allow proper blending to ensure the correct margarine emulsion is produced. The prepared emulsion is then transferred to an emulsion feed tank. The entire emulsion is pasteurized using a WCB plate heat exchanger. The pasteurizer includes heating and cooling sections as well as a regeneration section to reclaim part of the energy input. A high pressure pump feeds the pasteurized emulsion to Votator<sup>®</sup> scraped surface heat exchangers equipped with controls to maintain product temperature and power sensing components to prevent freezing due to overcooling. The flow of cooled emulsion from the heat exchanger is then crystallized, plasticized and conditioned. Votator<sup>®</sup> agitated holding units are used for tub or bulk filling while Votator<sup>®</sup> quiescent holding tubes are used for stick molding or sheet printing. WCB multitube heat exchangers continuously remelt filler overfeed and return it to the pasteurization system. The remelt system is designed to handle the entire production rate during start-up or shutdown of the packaging machine.

### BLOCK FLOW DIAGRAM:



### PROCESS SYSTEM FEATURES:

- Accurate ingredient addition using load cells and digital weight system.
- Capable of running full fat or low fat products.
- Capable of running stick, sheet, tub or bulk products.
- System flexibility allows production of multiple formulas using the same equipment.
- Pasteurization of entire emulsion minimizes risk of contamination from aqueous phase.
- Prepackaged margarine unit with optional computer controls.
- Optional high pressure (1500 PSIG) margarine unit design.
- Available with optional multi-head metering pump for high capacity full fat production. Volumetric and single scale tank batching systems also available.
- Equipment and process designed to be cleaned in place.

### EQUIPMENT REQUIRED:

- Mixing and storage tanks
- WCB centrifugal pumps
- WCB plate or tubular heat exchanger
- WCB hot water sets
- WCB holding tube
- Votator<sup>®</sup> scraped surface heat exchanger
- Votator<sup>®</sup> agitated worker (B) unit
- Votator<sup>®</sup> quiescent holding (Q) unit
- WCB extrusion valves
- Miscellaneous valving
- Control system
- CIP system

### INFORMATION REQUIRED

#### FOR QUOTATION:

- Products \_\_\_\_\_
- Product usage rate \_\_\_\_\_
- Product SFI \_\_\_\_\_
- Product viscosity \_\_\_\_\_
- Desired product use temperature \_\_\_\_\_
- Desired holding method and time \_\_\_\_\_
- Ingredients used per batch \_\_\_\_\_
- Ingredient inlet temperature \_\_\_\_\_
- Electrical service available \_\_\_\_\_
- Steam service available \_\_\_\_\_
- Cooling media service available \_\_\_\_\_

### PROCESS PARAMETERS:

- Standard Capacities: 2,000 to 20,000 lb/hr
- Process Duty: 120°F/68°F to 176°F to 120°F to 75°F/85°F

